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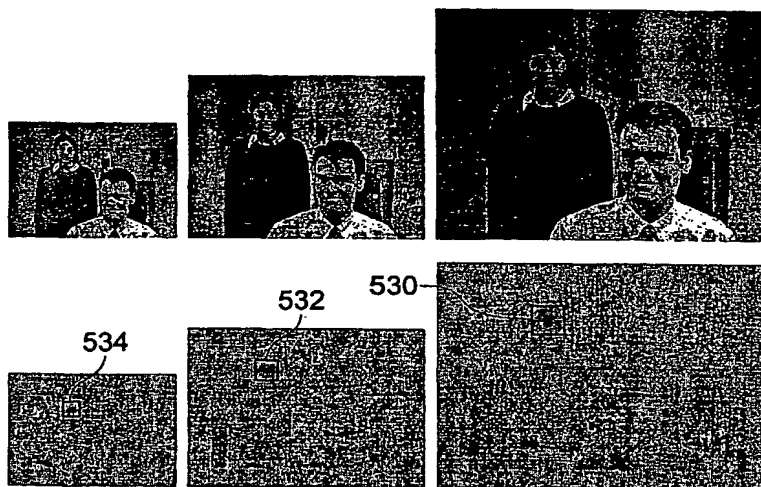
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- For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

(54) Title: FACE DETECTION



(57) Abstract: Face detection apparatus generating an output indicative of the likelihood of test regions of a test image containing a face comprises means operable to compare a test region with face data indicative of the presence of a face in such a way as to detect plural respective likelihood value indicative of the likelihood of the test region containing a face of a group of respective different face sizes; and control means, responsive to metadata associated with the image defining one of a set of predetermined classifications of the image, for modifying the group and/or the likelihood values in dependence upon a face size or range of face sizes appropriate to the classification of that image.

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INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference P015804W0	FOR FURTHER ACTION see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.	
International application No. PCT/GB 03/05236	International filing date (day/month/year) 28/11/2003	(Earliest) Priority Date (day/month/year) 29/11/2002
Applicant SONY UNITED KINGDOM LIMITED		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 4 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

- a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

- b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing :

☐ contained in the international application in written form.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form.

☐ the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. ☐ **Certain claims were found unsearchable** (See Box I).

3. ☐ **Unity of invention is lacking** (see Box II).

4. With regard to the **title**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the **drawings** to be published with the abstract is Figure No.

☒ as suggested by the applicant.

☐ because the applicant failed to suggest a figure.

☐ because this figure better characterizes the invention.

13a-c

☐ None of the figures.

INTERNATIONAL SEARCH REPORT

International Application No

T/GB 03/05236

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 G06K9/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHEDMinimum documentation searched (classification system followed by classification symbols)
IPC 7 G06K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)
EPO-Internal, INSPEC, COMPENDEX, IBM-TDB, PAJ, WPI Data**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	<p>TAE-KYUN KIM ET AL: "Integrated approach of multiple face detection for video surveillance" PATTERN RECOGNITION, 2002. PROCEEDINGS. 16TH INTERNATIONAL CONFERENCE ON QUEBEC CITY, QUE., CANADA 11-15 AUG. 2002, LOS ALAMITOS, CA, USA, IEEE COMPUT. SOC, US, 11 August 2002 (2002-08-11), pages 394-397, XP010613903 ISBN: 0-7695-1695-X page 395, left-hand column, paragraph 3</p> <p style="text-align: center;">----- -/--</p>	1-16

☒ Further documents are listed in the continuation of box C.☐ Patent family members are listed in annex.

* Special categories of cited documents:

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

T later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

X document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

Y document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

G document member of the same patent family

Date of the actual completion of the international search

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INTERNATIONAL SEARCH REPORT

International Application No

T/GB 03/05236

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	<p>GARCIA C ET AL: "Face detection using quantized skin color regions merging and wavelet packet analysis" IEEE TRANS. MULTIMED. (USA), IEEE TRANSACTIONS ON MULTIMEDIA, SEPT. 1999, IEEE, USA, vol. 1, no. 3. September 1999 (1999-09), pages 264-277. XP001191136 ISSN: 1520-9210 page 269, left-hand column, paragraph 2 - right-hand column, paragraph 1 -----</p>	1-16
A	<p>HARDEBERG JON'Y: "Digital red eye removal" J IMAGING SCI TECHNOL; JOURNAL OF IMAGING SCIENCE AND TECHNOLOGY JULY/AUGUST 2002, vol. 46, no. 4, July 2002 (2002-07), pages 375-379, XP001189507 page 378, left-hand column, paragraph 6 -----</p>	1-16